June 13, 2005

Mr. Mark A. Prescott
Department of Homeland Security
U.S. Coast Guard, Commandant (G-MSO-5)
Deepwater Ports Standards Division
2100 Second Street, SW
Washington, DC 20593-0001

Docket No: USCG-2004-18474

Dear Mr. Prescott:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Draft Environmental Impact Statement (DEIS) for the liquefied natural gas (LNG) deepwater port terminal and natural gas pipeline facilities proposed by Pearl Crossing LNG Terminal, LLC. Under Section 309 of the Clean Air Act, EPA is responsible for reviewing and commenting on Federal actions significantly affecting the quality of the environment. In addition, EPA is a cooperating agency for this project. EPA's review of the DEIS includes comments pursuant to both of EPA's roles in this matter.

Pearl Crossing, LLC, an affiliate of ExxonMobil, proposes to construct a LNG receiving, storage, and re-gasification facility and associated offshore and onshore pipelines in Cameron and Calcasieu Parishes in Louisiana. The proposed deepwater port would be located in an area approximately 41 miles south of Cameron Parish, Louisiana, in Outer Continental Shelf lease block West Cameron (WC) 220, in a water depth of approximately 62 feet. The Pearl Crossing deepwater port would consist of a gravity-based structure (GBS) containing two LNG storage tanks with capacities of 327,000 cubic yards and facilities to provide for LNG carrier berthing. Pearl Crossing would also construct and operate two offshore Pearl Crossing pipelines approximately 53 miles long, two offshore to onshore pipelines approximately 0.5 miles long, and a single onshore pipeline approximately 63.7 miles long. The pipelines would transport the natural gas produced by the offshore LNG re-gasification facility to onshore intrastate and interstate gas transmission facilities. Pearl Crossing expects to have an average annual send out rate of about 2.0 billion standard cubic feet per day (bscfd) of natural gas to the pipeline system with a peak send out rate of 2.8 bscfd.

6ENXP:JANSKY:mj:061305:FINAL REV:USCG:PEARL CROSSING LNG: DEIS

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SMITH	GIBSON	LAWRENCE	FLORES

Multiple alternatives were examined in the DEIS: different geographic sites for the port, alternate pipeline onshore and offshore routes, fabrication locations, vaporization technologies, seawater intake/discharge designs, and marine life exclusion systems. After evaluation of an array of possibilities, the applicant elected to use the West Cameron Block 220, two offshore pipelines and a single onshore pipeline, open rack vaporization (ORV or "open loop") technology and port fabrication in Ingleside, Texas. All alternatives were compared to the no-action option.

EPA has assigned the proposed "open loop" ORV re-gasification system a rating of "environmental objection" because of the anticipated direct and cumulative adverse environmental impacts to Gulf waters and habitat. ORV employs a "once through" system to warm the LNG to operating temperatures via heat transferred from ambient Gulf waters. An average of 195 million gallons per day of seawater would be required to re-gasify the LNG. The chilled water can have scouring effects on the sea bottom, creating attendant turbidity plumes of suspended sediments. Chemical biocides and sudden water temperature reductions can be lethal to fish, shellfish eggs, and larvae. The use of this open-loop technology would introduce significant aquatic impacts due to impingement and entrainment.

EPA believes that these impacts can be corrected by the project modifications or other feasible technology. EPA is requesting that additional information be gathered to evaluate and resolve the outstanding issues noted in the enclosed detailed comments, including alternatives to the use of ORV. EPA therefore classifies the DEIS as EO-2; i.e. (Environmental Objections-Insufficient Information).

EPA appreciates the opportunity to review and provide comments on the DEIS, and our technical staff would be happy to discuss these comments with you in greater detail. If you have any questions, please contact Mike Jansky of my staff at (214) 665-7451 or e-mail him at jansky.michael@epa.gov for assistance. When the Final EIS (FEIS) is published, please send our office five copies.

Sincerely yours,

/S/

John Blevins
Director
Compliance Assurance and
Enforcement Division

Enclosure

DETAILED COMMENTS
FOR THE
PEARL CROSSING LNG PROJECT
UNITED STATES COAST GUARD
DRAFT ENVIRONMENTAL IMPACT STATEMENT

BACKGROUND

Pearl Crossing, LLC, an affiliate of ExxonMobil, proposes to construct a liquefied natural gas (LNG) receiving, storage, and re-gasification facility and associated offshore and onshore pipelines in Cameron and Calcasieu Parishes, Louisiana. The proposed deepwater port would be located in an area approximately 41 miles south of Cameron Parish, Louisiana, in Outer Continental Shelf lease block West Cameron (WC) 220, in a water depth of approximately 62 feet. The Pearl Crossing deepwater port would consist of a gravity-based structure (GBS) containing two LNG storage tanks with capacities of 327,000 cubic yards and facilities to provide for LNG carrier berthing. Pearl Crossing would also construct and operate two offshore Pearl Crossing pipelines approximately 53.0 miles long, two offshore to onshore pipelines approximately 0.5 miles long, and a single onshore pipeline approximately 63.7 miles long. The pipelines would transport the natural gas produced by the offshore LNG re-gasification facility to onshore intrastate and interstate gas transmission facilities. Pearl Crossing expects to have an average annual send out rate of about 2.0 billion standard cubic feet per day (bscfd) of natural gas to the pipeline system with a peak send out rate of 2.8 bscfd.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

The applicant proposes the construction and operation of a LNG terminal using a GBS. The GBS is essentially a large concrete storage structure that can hold up to 327,000 cubic yards of LNG chilled to minus 260 degrees Fahrenheit. The facility has been designed to deliver up to 2.0 bscfd of natural gas. The applicant proposes to use Open Rack Vaporizers (ORVs), also known as an "open loop" system to regasify the LNG. The ORVs would use the natural heat of Gulf of Mexico water in a single pass through to change the state of the LNG from liquid to gas.

To achieve the proposed send-out rate of 2.0 bscfd, the ORVs would require 195 million gallons per day (mgd) of Gulf water. Over the planned 30-year life of the project, the facility would pump 2.1 trillion gallons of Gulf water through the ORV system. The use of ORV systems requires the use of biocides to eliminate marine growth and prevent bio-fouling of the intake equipment, heat exchangers and pumps. The applicant proposes using sodium hypochlorite, a known aquatic toxicant. The sodium hypochlorite will be injected at a continuous rate of 0.2 mg/l. In addition, to prevent a potential buildup of marine growth, each of the up to 13 pumps in operation would be shocked or "spiked" with an additional 2.0 mg/l sodium hypochlorite for 20-minutes during every 8-hours of operation. This spiking operation will occur such that only one pump will be spiked at a time. The facility would not treat the discharged water and with normal operation plus the spiking operation, will discharge approximately 1680 pounds of untreated sodium hypochlorite each day, or over 610,000 pounds

per year into Gulf waters. The water discharged back to the Gulf, after flowing through the ORV, will be 20 degrees Fahrenheit cooler than the ambient Gulf waters. Lastly, the use of ORV systems introduces aquatic impacts due to impingement and entrainment (I&E).

The ORV system will result in lethality to aquatic organisms from several causes. The physical intake structure will cause lethality from impingement of non-mobile aquatic organisms that are larger than the 0.25 inch screen wire opening. Additionally, those organisms that are smaller than the screen wire opening, most notably fish eggs and larvae, will be entrained and suffer lethality from impingement on impellers, toxicity of the sodium hypochlorite, and/or the temperature drop associated with the warming of the LNG.

An alternative LNG re-gasification system to the proposed ORV system is the Submerged Combustion Vaporization (SCV), also known as a "closed loop" system. The SCV system uses a water bath structure with stainless steel coils submerged within the water bath. The water is heated by a small portion, between 1.5 and 2 percent, of the vaporized LNG. SCVs are designed to utilize the low pressure fuel gas derived from the boil-off gases of the facility and the let-down gas from the send-out gas. In operation, the high pressure LNG is forced through the coils and the heat of the water bath then vaporizes the LNG within the coils. The changed natural gas exits the coils at high pressure. This system can handle wide fluctuations in LNG feed rate and is not influenced by Gulf water temperature. SCV technology would eliminate water quality issues associated with chilled water and the use of chemical biocides. In addition, other impacts such as seabed scouring, increased turbidity, and depressed dissolved oxygen effects due to dead organisms in the ORV warming water discharge would also be eliminated. Use of SCV technology would also eliminate the I&E lethality of aquatic organisms associated with the intake structure.

With SCV technology, the exhaust gases flow directly through a water bath that acts as a quench and abatement system. Since the SCV combustion process relies on the LNG, a clean fuel, its air quality consequences are primarily associated with oxides of nitrogen and carbon dioxide emissions. Existing domestic LNG terminals use the SCV systems, and several new onshore SCV systems are being proposed on the Texas coast. Offshore, SCV systems are being economically and profitably used or planned today in other parts of the United States (and the world), especially in areas where seawater temperature is at or below 48 degrees Fahrenheit, the temperature at which ORV systems become impractical because the seawater may freeze within the system. Planned domestic and worldwide LNG port structures that use or are proposed to use the SCV system are clear indicators that their use does not present a financial barrier to market entry. SCV systems are being proposed for U.S. offshore LNG import terminals including two in California (Cabrillo Port and Crystal Energy) and three in New England (Broad Water, Excererate Energy, and Disti-gas).

Because EPA has not promulgated effluent guidelines for LNG facilities, the NPDES permit issued by EPA may include technology-based discharge standards that represent the “best

available technology economically achievable" (BAT) developed using EPA's best professional judgment (BPJ). Such technology-based limits are established based on performance of pollution reduction technologies available to an industrial category or class, even when water quality needs would not require as much reduction. EPA regulations set forth a number of factors that must be considered when developing BAT-based discharge limits, including the: (i) age of equipment and facilities involved; (ii) process employed; (iii) engineering aspects of the application of various types of control techniques; (iv) process changes; (v) cost of achieving such effluent reduction; and (vi) non-water quality environmental impact (including energy requirements). See 40 C.F.R. § 125.3(d)(3).

For EPA to perform the BAT analysis in developing the discharge limits in the NPDES permit, additional comparative analysis of the ORV and SCV technology alternatives will need to be provided in the EIS. At a minimum, the following information should be fully detailed in the
FEIS:

1. Capital and operating costs associated with redesigning the ORV system to address currently identified environmental impacts of ORV re-gasification technology.
2. Additional analysis of the reduction of water pollution/increase in air pollution associated with the use of SCV technology.
3. Incremental compliance cost, e.g., operating costs, of change from ORV to SCV.
4. The DEIS states that "SCV presents a potential ingnition source at the offshore terminal, requiring additional safeguards compared with ORV systems." However, the DEIS does not cite what these safeguards are and how much they cost. These costs and safeguards need to be identified.

To perform its BAT analysis, EPA will also need to construct a cash flow model to estimate the potential economic impact (pre-tax) of the various vaporization technology annualized costs on the LNG import terminal. To perform that analysis, EPA will need the following input parameters for the implementation of both ORV and SCV at the LNG terminal:

1. Projected average annual revenue.
2. Projected price of natural gas at delivery to U.S. market.
3. Detailed projected capital and operating costs.
4. Projected sales, general, and administrative (SG&A) costs.
5. Projected depreciation expenses.
6. Interest paid out for the LNG import terminal project.

Additional documentation for both the EIS alternatives analysis and subsequent NPDES permit is required to evaluate the best available technology economically achievable as well as the impacts of the discharge on the marine environment. To finalize the permitting process, more detailed engineering and economic information on the various re-gasification options will have to be obtained from the applicant. Completion of the comparative analysis between ORV and SCV will need the expected initial investment cost of the deepwater port as well as the financial projections the applicant used.

WETLANDS AND DREDGED MATERIAL

Page ES-41, last paragraph and page 6-35, last sentence: The statement is made that "[c]umulative wetland losses are anticipated to be offset due to the required creation of new wetlands and wetland mitigation banking, as would be required by the CWA." Neither wetland creation nor mitigation banking is required by the Clean Water Act. However, the 1990 EPA/Corps of Engineers Memorandum of Agreement entitled "The Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines" establishes a mitigation sequence of: 1) avoiding wetland impacts to the maximum extent practicable; 2) mitigating the remaining impacts to the extent practicable; and finally, 3) compensating for the remaining aquatic resource values impacted. When developing plans to compensate for unavoidable losses, there are four types of compensation: creation, restoration, enhancement and preservation. Thus, there are a number of options to consider, though creation of new wetlands is certainly not always required and it may not be the first option to consider. Similarly, mitigation banking is just one of several avenues for achieving wetland preservation or enhancement, though it is not a technique required by the Clean Water Act.

Section 4.4.1.2: The FEIS should include a clear explanation of the actions taken to mitigate the wetland impacts at the fabrication, or graving site. It would appear that this should include a discussion of the existing Kiewit Offshore Services permit from the Corps of Engineers (# 22302), which covers development of the site (adjacent to the La Quinta Channel, near Ingleside, TX) and includes mitigation for wetlands and special aquatic sites. It is our understanding that the mitigation required under this permit has already been completed and the Corps would consider that mitigation applicable to the Kiewit site terminal construction activities proposed for this LNG project. However, Section 4.4.4.1 of the DEIS (proposed license condition KS-2) implies that additional submerged aquatic vegetation may be impacted by the LNG project beyond that accounted for in the existing Kiewit Offshore Services permit. This situation should be clarified in the FEIS.

Section 4.4.1.2: The FEIS should clarify whether the casting basin will be re-filled upon completion of the construction activities and how this will impact the dredged material disposal plans.

CUMULATIVE IMPACTS

Section 6.1.3: This section on cumulative impacts for the graving dock facilities notes that a number of proposed LNG facilities have identified the Kiewit site as the preferred terminal construction site and that all of the projects would expect to be constructed within the same general time frame. This analysis in the document rules out the concept of a staged construction schedule as not meeting each individual project's purpose and need. So, if staged construction at the same site is not an option, it does not seem reasonable that multiple LNG projects should plan to utilize the same fabrication site.

However, the ConocoPhillips Beacon Port information describes a fabrication plan in

which a total of four gravity-based structures would be constructed for both the Beacon Port and the Compass Port LNG facilities. This sequencing would potentially minimize impacts to coastal resources over the use of two separate construction sites, since only one site would be disturbed for construction activities for two sites. Since construction of the gravity-based structures would take at least three years, it would seem that there would be opportunities for developing construction designs on a single site, or a limited number of sites, and scheduling sequential tow outs to the Gulf of Mexico. Such an arrangement could minimize impacts to water quality, seagrass beds, and other aquatic resources, as well as being conducive to planning for cumulative dredged material management.

If, however, such a joint use of the Kiewit site is truly not feasible, then the Coast Guard should not continue to identify and analyze the Kiewit site as the preferred fabrication alternative for additional LNG projects, this one included. If, under the current LNG licensing and permitting scenario, the Kiewit site is not a reasonably foreseeable alternative (40 CFR 1502.14) because it has previously been identified as the fabrication site for other LNG projects, it certainly should not be selected as the preferred alternative in this case. In this DEIS for the Pearl Crossing LNG project, the preferred alternative is more rigorously evaluated than the other alternatives. If it is not a feasible alternative, then the fabrication site that actually may be the one most likely to be utilized would require additional impact analyses and more thorough mitigation planning. For example, the DEIS states that the wetland delineations for the McDermott and the Welder alternative fabrication sites have not been completed and no wetland mitigation plans for those alternatives are presented in the DEIS. The FEIS for this project should clearly identify an alternative that is feasible, in light of the other LNG project analyses completed by the Coast Guard for fabrication construction at the Kiewit, Welder, and McDermott sites.